Presentation to Water Policy Task Force

City of San Diego 2012 Long-Range Water Resources Plan

November 27, 2012

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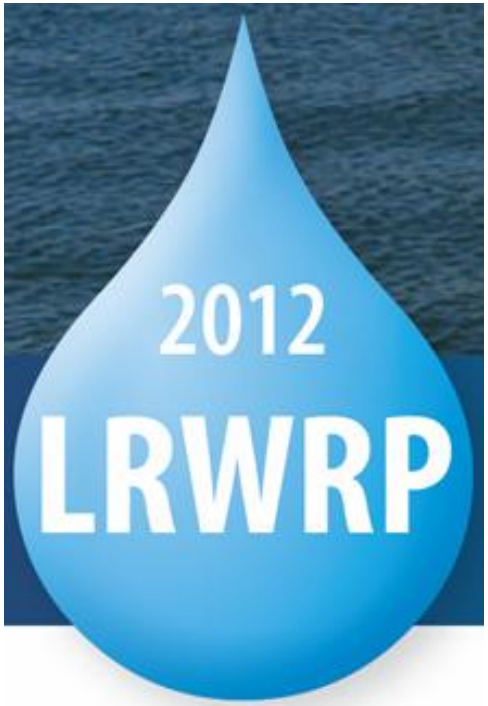
What is the 2012 LRWRP?

- High-level strategy for City's water resources
- Evaluates water supply and demand-side options against multiple planning objectives
- Takes a long-range viewpoint, through year 2035
- Addresses risk and uncertainty of future conditions



Goals of 2012 LRWRP

- Evaluate emerging issues such as: climate change, energy footprint, emerging contaminants of water sources
- Re-assess objectives and stakeholder values
- Update water demand projections and water supply options
- Update imported water availability and costs
- Determine preferred future supply mix
  - Develop adaptive and flexible implementation strategy

Relation to Other Planning Work

LRWRP

- Strategic planning
- Conceptual analysis
- Examines trade-offs between alternatives
- Develops overall targets for supply & demand-side programs

UWMP

- Required by State every five years
- Compares supplies and demands under normal & dry years
- Summarizes conservation & drought management

Master Plans and Studies

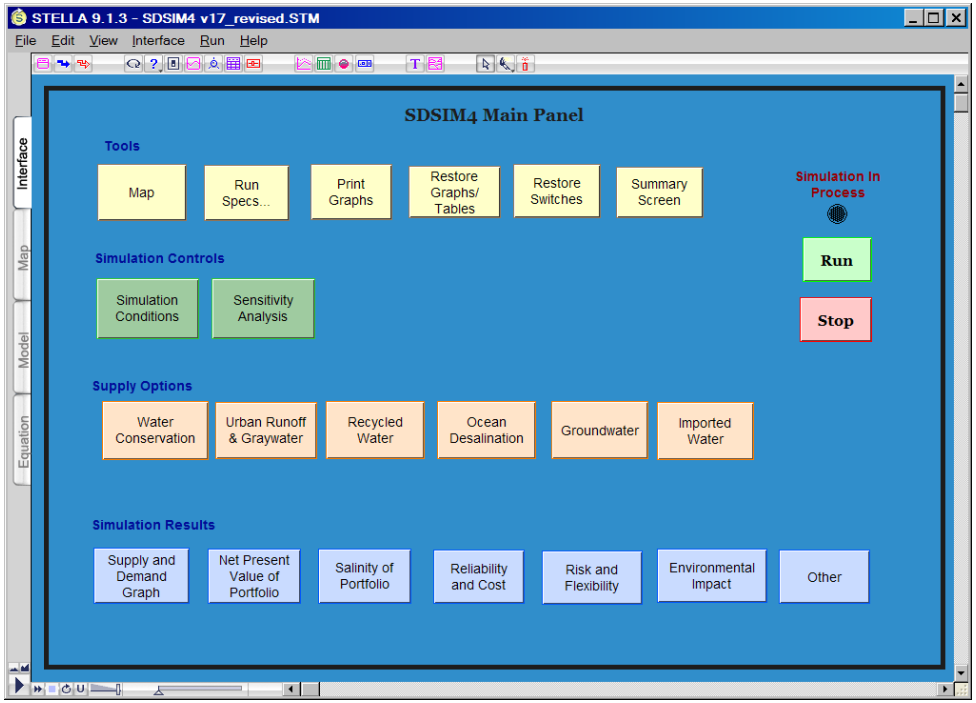
- Facilities plans for water & recycled water
- Groundwater management plans & studies

CIP

- Identified projects for near-term implementation
- Detailed cost and schedule information

2012 LRWRP Planning Process

- An open, participatory planning
- Stakeholder driven process
- The evaluation process relied on
  - engineering expertise
  - past technical studies
  - water demand forecasting
  - simulation models & decision tools



Stakeholders

- **Don Billings**

  Independent Rates Oversight Committee
- **Gordon Hess, P.E.**

  San Diego Regional Chamber of Commerce
- **Sean Karafin**

  San Diego County Taxpayers Association
- **Mike McSweeney**

  Building Industry Association of San Diego
- **Jim Peugh**

  Independent Rates Oversight Committee
- **Glen Schmidt**

  Schmidt Design Group, Inc.
- **Irene Stallard-Rodriguez**

  Independent Rates Oversight Committee
- **Yen Tu**

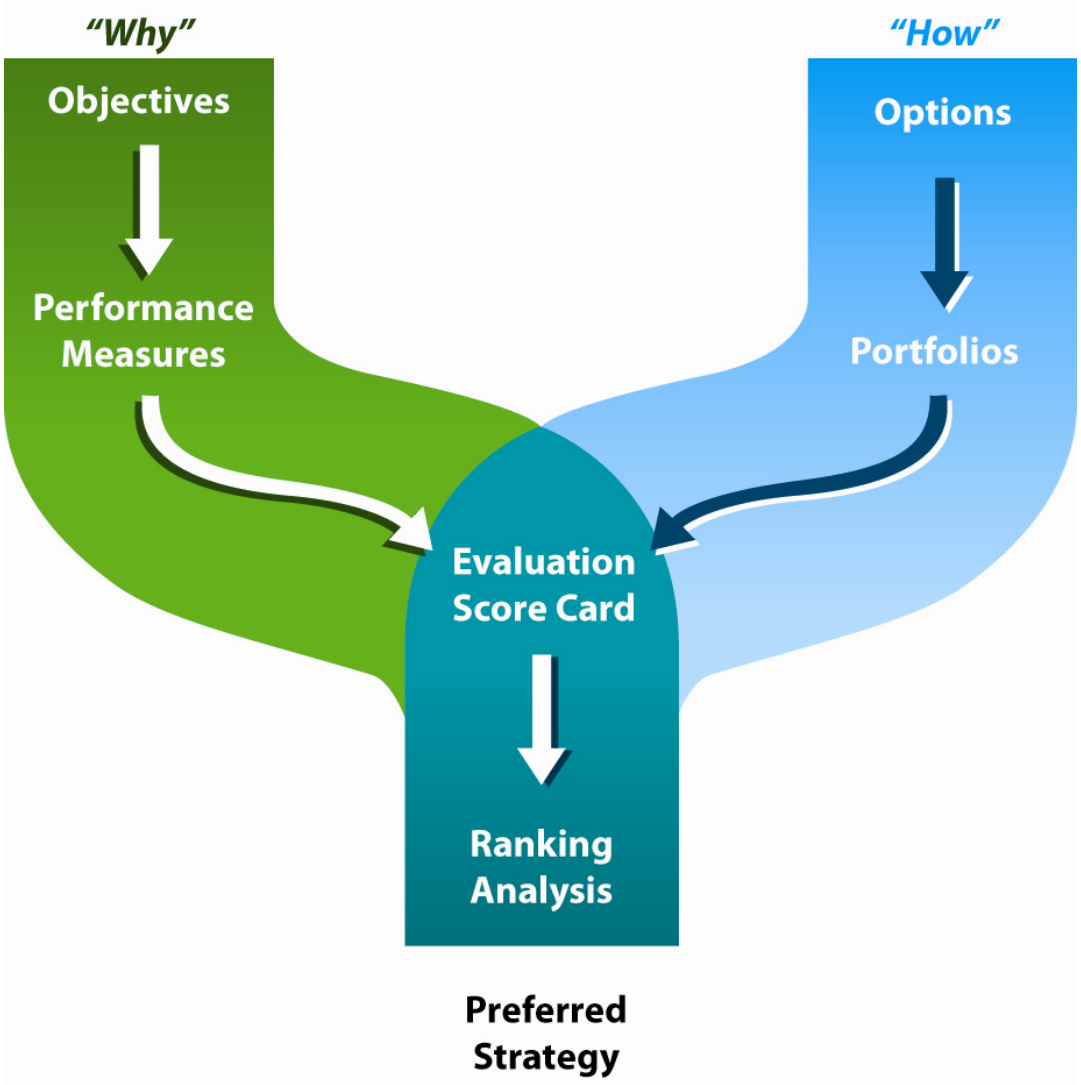
  City 10 Representative
- **Gail Welch**

  Independent Rates Oversight Committee
- **Daniel Wery**

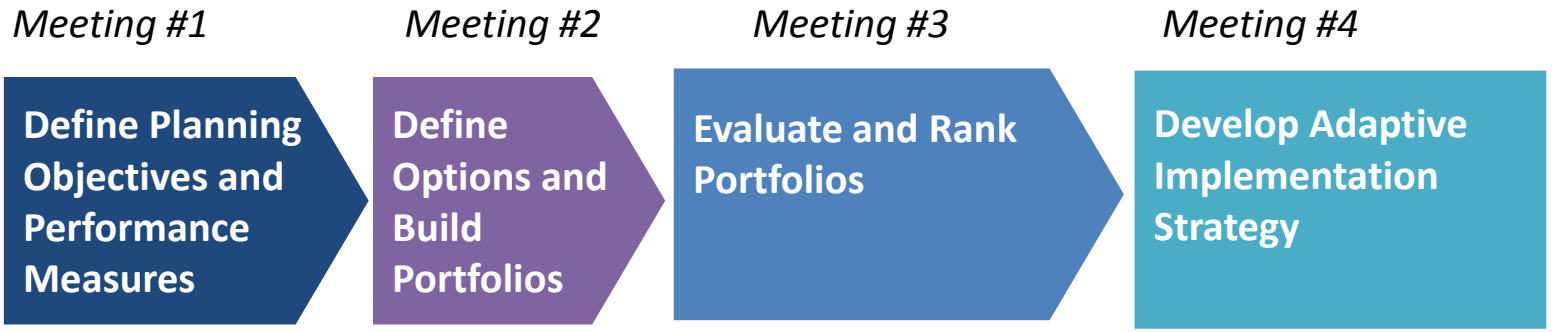
  San Diego Section of the American Planning Association
- **Jill Witkowski**

  San Diego Coastkeeper

2012 LRWRP Planning Process



2012 LRWRP Planning Process

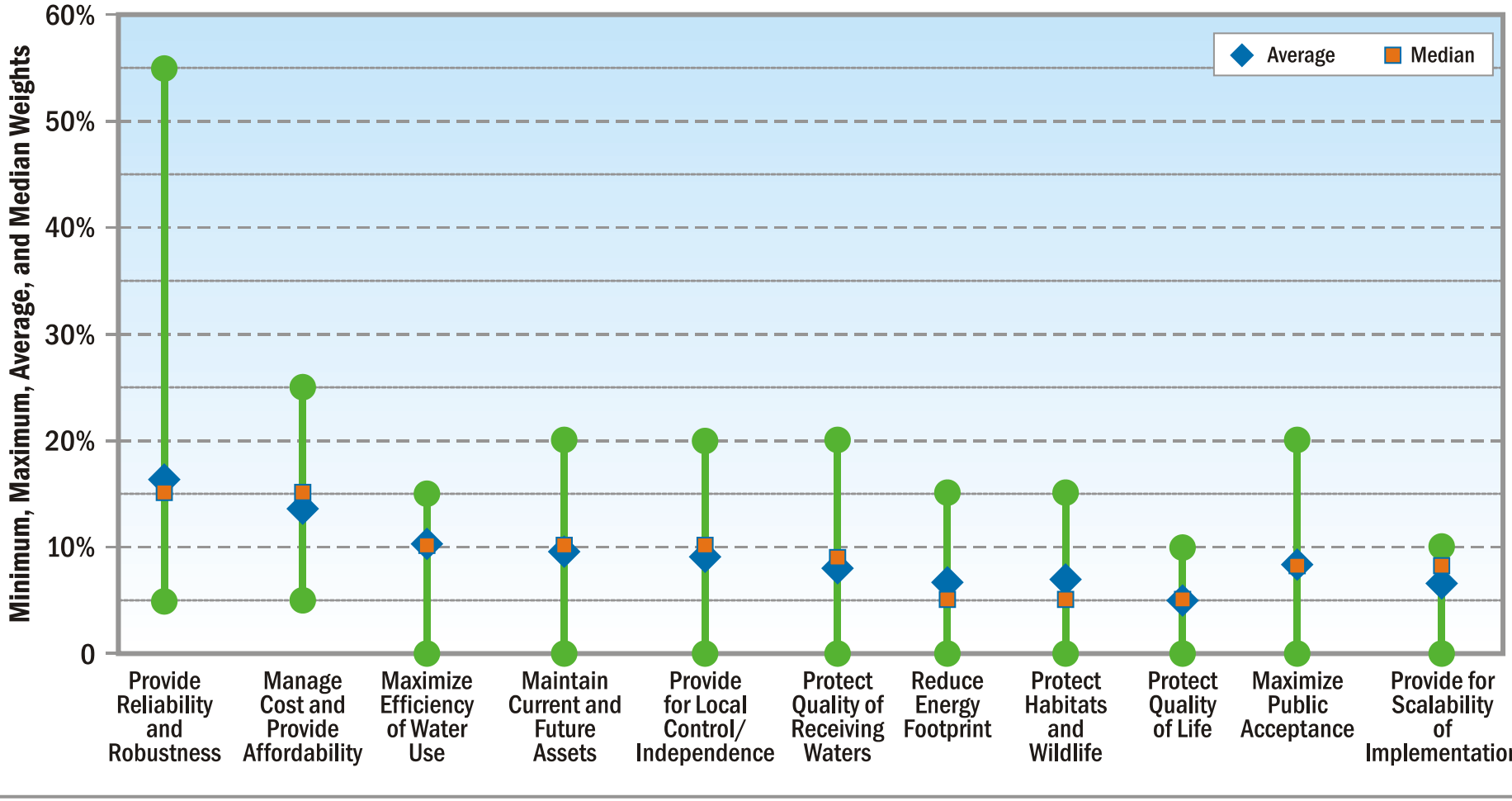


- *Evaluate performance of portfolios using the City's water resources simulation model*
- *Rank portfolios using decision model*
- *Perform Sensitivity Analyses*
- *Identify common options in top portfolios*

- *Trade-off Analysis of benefits and cost for top portfolios*
- *Determine "No Regret" Near-term actions*
- *Identify risks that would trigger the need for additional actions*
- *Develop Long-term Strategy based on Risk Triggers*

The outcome of the plan is a water resources strategy that identifies near-term actions, with long-term strategies to adapt to future changing conditions. Every five years (or less), the City will monitor and assess the current state of it's water supplies and determine whether an adjustment of the long-term strategies is needed.

2012 LRWRP Objectives



Range of Options Considered

Supply Category	Number of Options	Range of Supply Yields (AFY)	Range of Unit Cost ($/AF)
Conservation			
Increase local conservation programs within San Diego	2	6,750 – 14,150	$200 –$500
Groundwater			
Increase groundwater supply within San Diego	6	500 – 10,000	$1,400 - $4,100
Recycled Water for Non-Potable Reuse[1]			
Increase reuse of treated wastewater for non-potable applications such as landscape irrigation	2	2,700 – 5,500	$2,100 - $10,900
Recycled Water for Indirect Potable Reuse[1]			
Reuse of Purified treated wastewater for indirect potable reuse	3	16,800 – 89,600	$2,100 - $4,700
Rainwater Harvesting			
Capture of urban runoff for water supply	2	100 - 416	$6,400 - $19,800
Graywater			
Non-sewage, on-site household wastewater that can be reused for non-potable uses	1	2,575	$13,500
Ocean Desalination			
Pay higher purchase cost to SDCWA in exchange for more reliable ocean desalination water	1	10,000	$3,100
Imported Water		As Needed and	
Increased imported water purchases from SDCWA	1	Available	$1,700
Other Concepts Considered			
Other groundwater, recycled, imported, etc.	6	NA	NA
Total:	24	100 – 56,000	$200 - $19,800

Initial Portfolios

Portfolio Name	Portfolio Definition/Description
1. Baseline (Status Quo)	Only existing water supply and conservation is included in this portfolio. Over time, the reliance on imported water from San Diego County Water Authority (SDCWA) will increase to meet growing water demands.
2. Maximize Reliability	Options included in this portfolio are those that have little to no hydrologic variability (and therefore not subject to droughts or climate change), and are owned/operated by the San Diego Public Utilities Department (SDPUD) or SDCWA. Options that rely on solely consumer behavior or customer maintenance are not included as they are not as reliable into the future.
3. Minimize Cost	Options included in this portfolio are those that have a unit cost ($/AF) less than projected cost of imported water from SDCWA.
4. Minimize Local Environmental Impacts	Options included in this portfolio are those that produce lower amounts of greenhouse gases (compared to imported water), those that have minimal or easily mitigated habitat impacts, and those that improve receiving water quality (rivers, streams, bays and natural groundwater).
5. Maximize Local Control	Options included in this portfolio are those in which SDPUD and the City have control over in terms of cost, development and operations into the future.
6. Maximize Water Use Efficiency	Options included in this portfolio are those that increase the efficiency of how water is used in the service area, including conservation, reuse, and capture of stormwater.

*Note existing water supplies and conservation are in every portfolio. Also, there will always be some reliance on imported water from SDCWA in every portfolio.

Hybrid Portfolios

Portfolio Name	Portfolio Definition/Description
7. Hybrid 1	Builds off the Minimize Cost Portfolio by adding Phase 1 Indirect Potable Reuse project
8. Hybrid 2	Builds off the Maximize Water Use Efficiency portfolio by adding groundwater projects, but removing non-potable reuse with satellite treatment plants, graywater, and centralized stormwater capture

*Note existing water supplies and conservation are in every portfolio. Also, there will always be some reliance on imported water from SDCWA in every portfolio.

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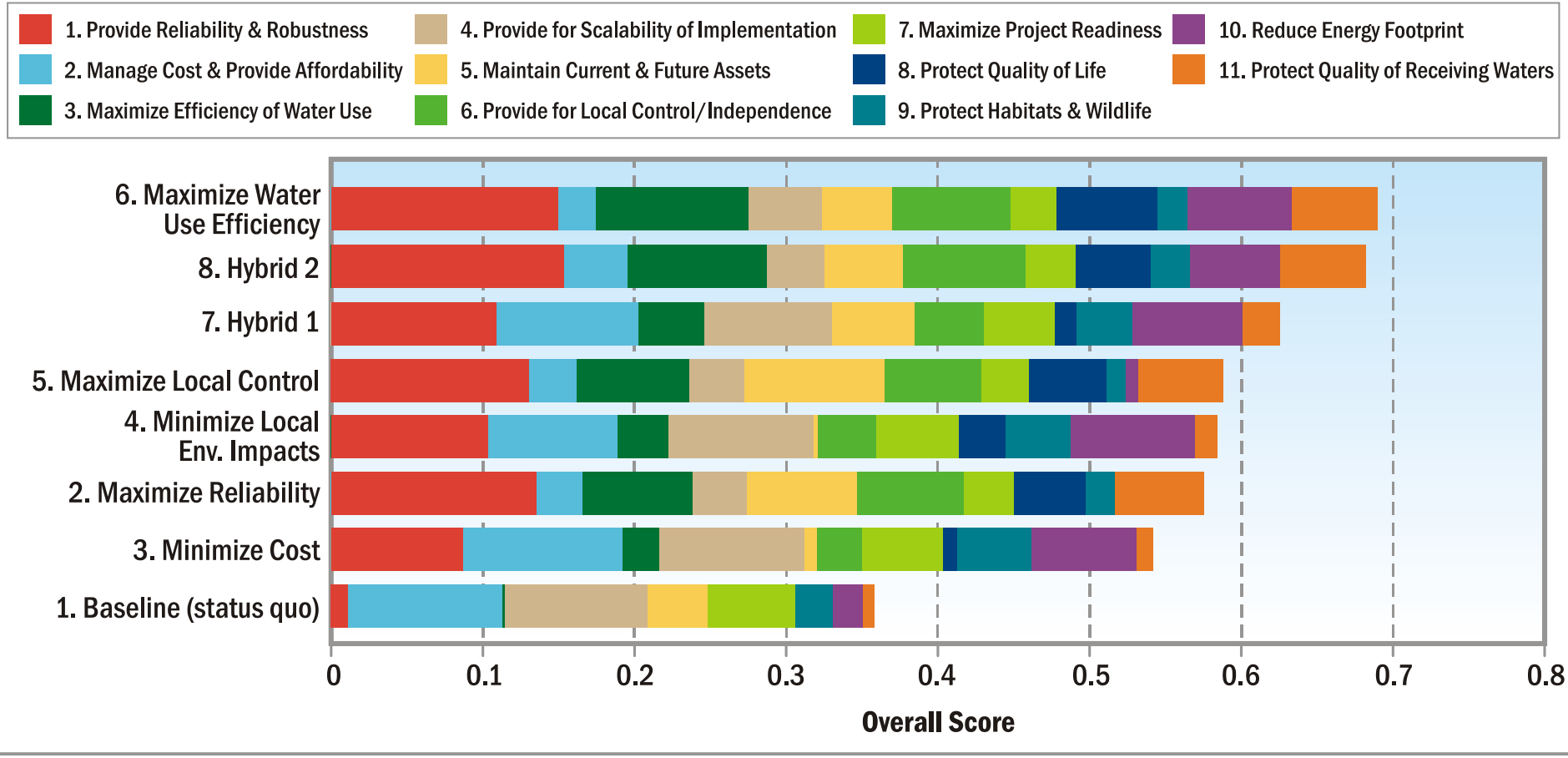
Evaluate Portfolios



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Common Elements in Top Portfolios

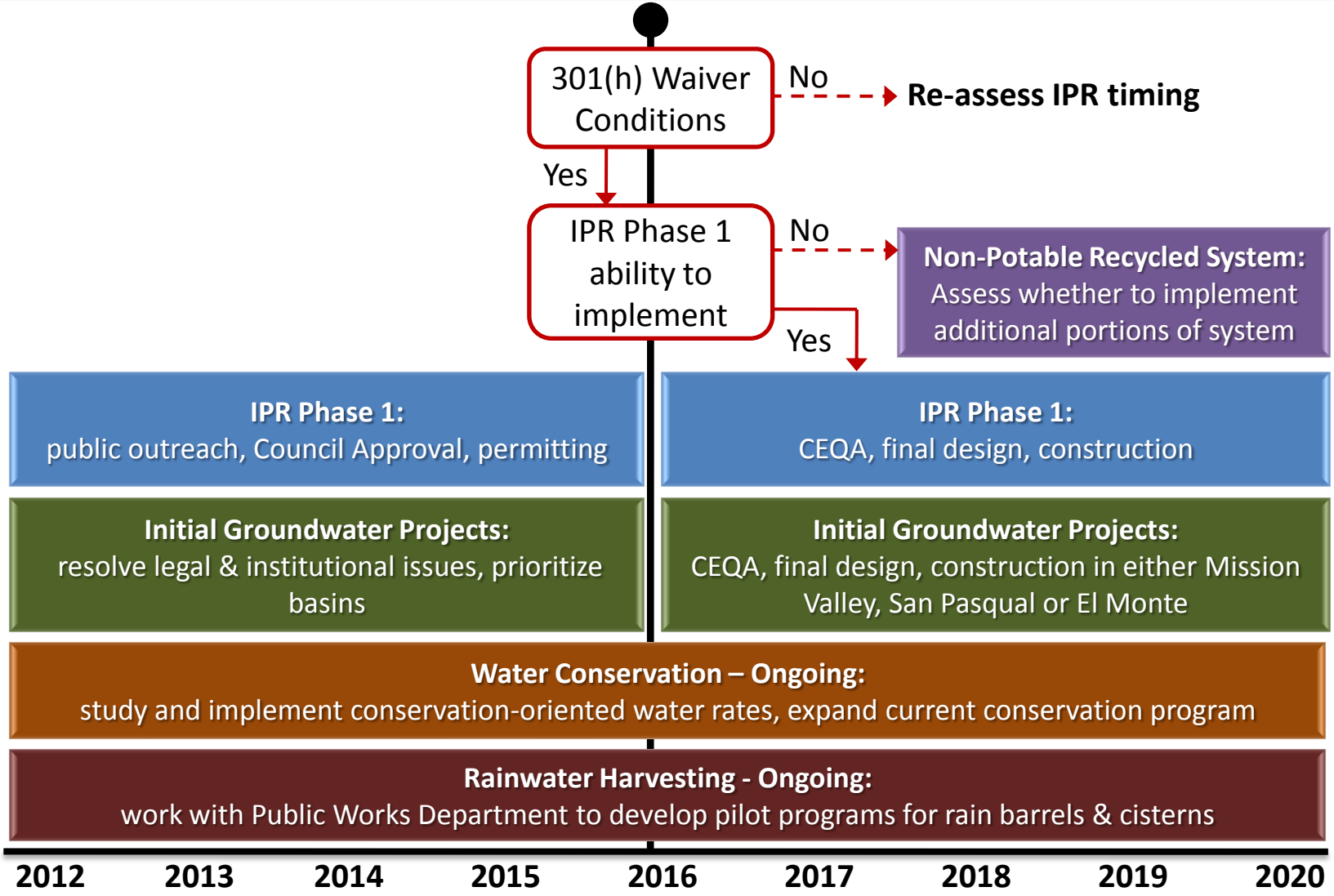
Resource Options	Hybrid 1	Hybrid 2	Max Efficiency
Active Conservation with Water Pricing Effects[1] –20,900 AFY	■	■	■
Groundwater (either San Pasqual, Santee-El Monte, or Mission Valley) – up to 4,000 AFY	■	■	■
Groundwater in San Diego Formation – additional 10,000 AFY		■	
Indirect Potable Reuse (Phase 1) – 16,800 AFY	■	■	■
Indirect Potable Reuse (Phases 2 and 3) – up to additional 72,800 AFY		■	■
Non-Potable Reuse from Satellite Plants – 5,500 AFY[2]			■
Rainwater Harvesting – 420 AFY	■	■	■
Rainwater Harvesting – Additional 100 AFY			■

Options common to top-scoring portfolios

[1] Based on City of *San Diego Water Demand Forecast Sensitivity Analysis* dated July 2011, which evaluates the responsiveness of water demands to changes in the marginal price of water.

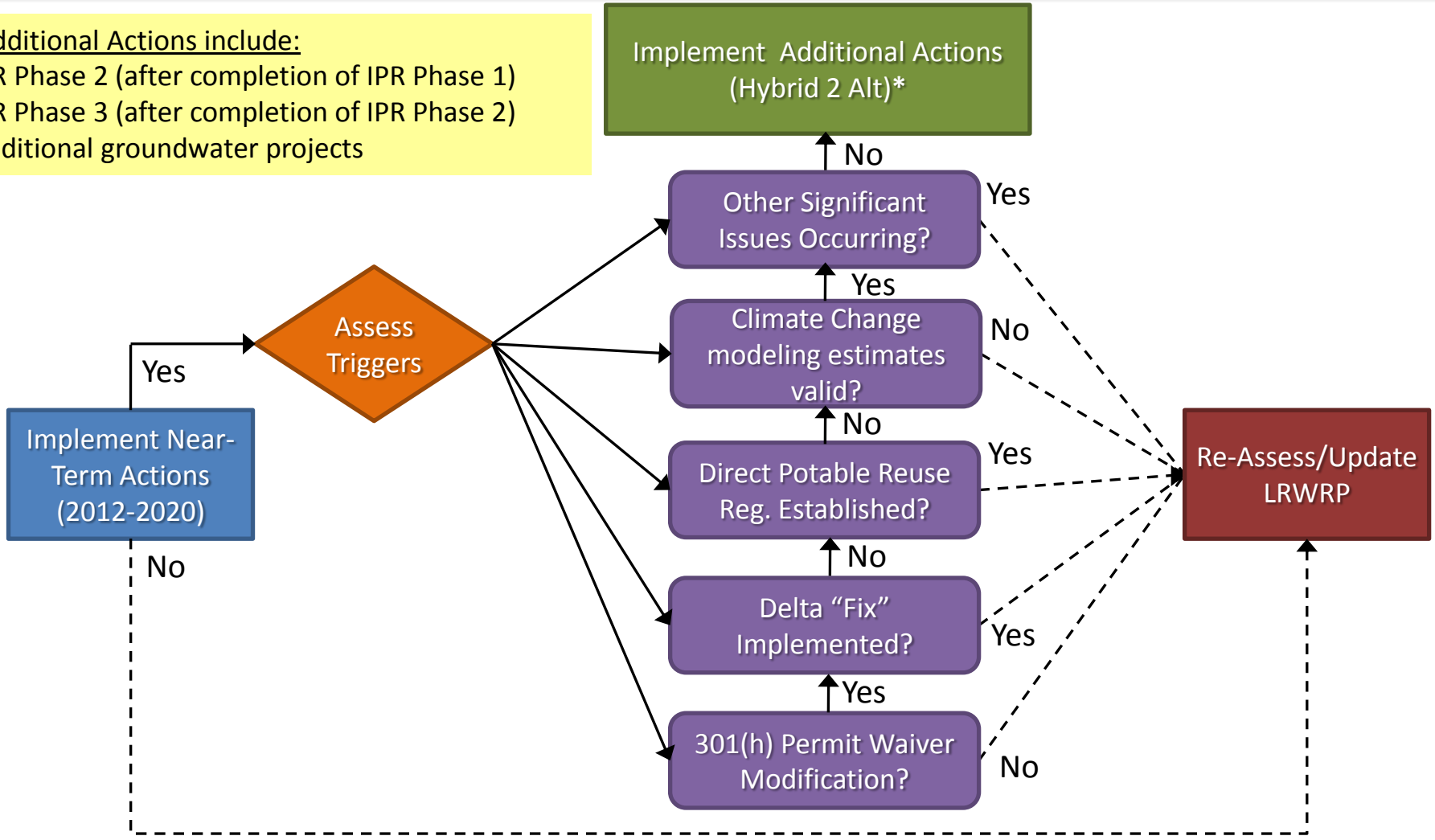
[2] Assumes yield from new satellite plants is additive to indirect potable reuse projects (they are not mutually exclusive).

Near-Term Actions with 1st Triggers



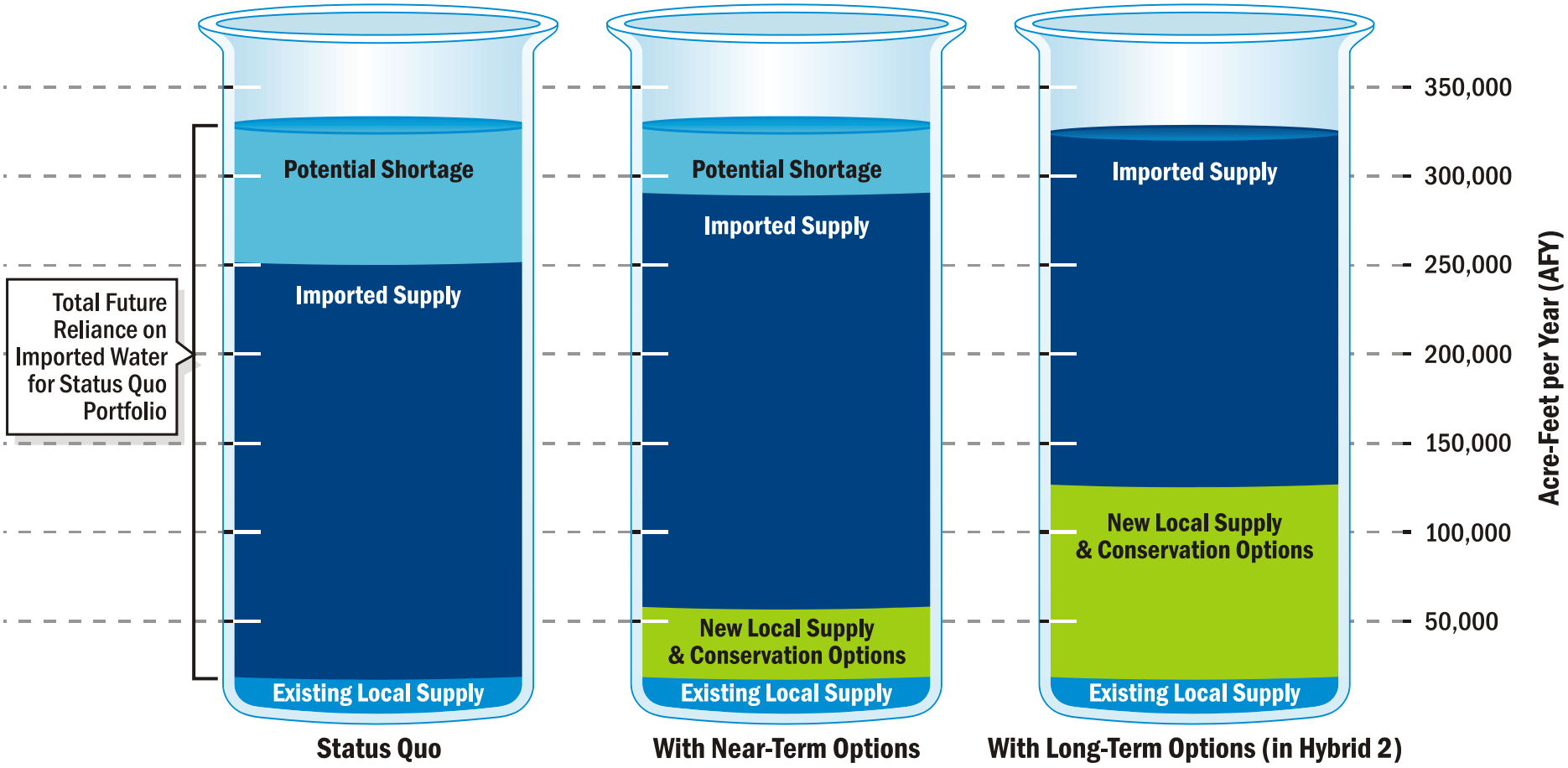
Proposed Adaptive Management Plan: *Long-term Implementation*

* Additional Actions include:
- IPR Phase 2 (after completion of IPR Phase 1)
- IPR Phase 3 (after completion of IPR Phase 2)
- Additional groundwater projects



Projected 2035 Supply Mix

Under Critically Dry Conditions



Note: Savings from existing conservation programs (which are projected to be more than 42,000 AFY in 2035) are factored into the demand and supply balance and not shown here.

LRWRP Schedule

Milestone	Date
Stakeholder Meeting on Draft Report	October 2012
Report Finalized	November 2012
IROC Presentation – tentative	January 2013
NR&C- tentative	January/February 2013
City Council - tentative	February 2013

End of Presentation

Sources of Imported Water

State Water Project & Colorado River Aqueduct

Metropolitan Water District of Southern CA (MWD) & San Diego County Water Authority (SDCWA)

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Overview of Imported Water Issues

State Water Project (SWP)

Shortages from drought conditions and court-ordered cutbacks in Bay-Delta pumping due to Endangered Species Act have resulted in water rationing across the state.

Colorado River Aqueduct (CRA)

Coming off an 8 year drought and over-allocation of water rights is forcing California to reduce its historical reliance.

Climate Change

California DWR estimates that future climate change could reduce SWP supplies 10 percent in normal years by 2050; similar reductions in CRA supplies could be expected.